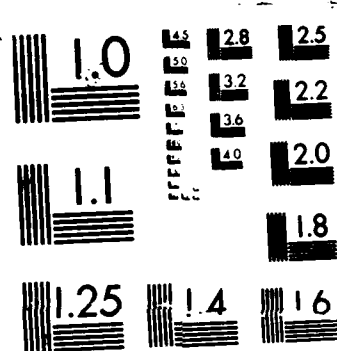


IMPROVED METHODS TO OBTAIN COMMUNICATIONS SERVICE FROM
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AIR COMMAND AND STAFF COLLEGE

STUDENT REPORT
IMPROVED METHODS TO OBTAIN
COMMUNICATIONS SERVICE FROM
COMMERCIAL VENDORS

MAJOR SAMUEL R. LOGAN 87-1580

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REPORT NUMBER 87-1580

TITLE IMPROVED METHODS TO OBTAIN COMMUNICATIONS SERVICE
FROM COMMERCIAL VENDORS

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Submitted to the faculty in partial fulfillment of
requirements for graduation.

AIR COMMAND AND STAFF COLLEGE
AIR UNIVERSITY
MAXWELL AFB, AL 36112

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

A179895

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED		1b. RESTRICTIVE MARKINGS None	
2a. SECURITY CLASSIFICATION AUTHORITY N/A		3. DISTRIBUTION/AVAILABILITY OF REPORT STATEMENT "A" Approved for public release; Distribution is unlimited.	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A			
4. PERFORMING ORGANIZATION REPORT NUMBER(S) 87-1580		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION ACSC/EDCC	6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION	
6c. ADDRESS (City, State and ZIP Code) Maxwell AFB AL 36112-5542		7b. ADDRESS (City, State and ZIP Code)	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State and ZIP Code)		10. SOURCE OF FUNDING NOS.	
		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT NO.
11. TITLE (Include Security Classification) IMPROVED METHODS TO OBTAIN			
12. PERSONAL AUTHOR(S) Logan, Samuel R., Major, USAF			
13a. TYPE OF REPORT	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Yr., Mo., Day) 1987 April	15. PAGE COUNT 30
16. SUPPLEMENTARY NOTATION ITEM 11; COMMUNICATIONS SERVICE FROM COMMERCIAL VENDORS			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP		
19. ABSTRACT (Continue on reverse if necessary and identify by block number) The American Telephone & Telegraph (AT&T) divestiture caused a significant change in the way the Department of Defense orders communication service. This study examines the problems caused by the divestiture and how DOD could improve its position in the communications service market. Two main problems emerged--the lack of significant competition on long haul service procurement actions and the lack of an end-to-end manager for communications circuits. The study recommends that several regions should be established within the United States, allowing designated companies to perform end-to-end management functions and to route the communications circuits in the most efficient manner. Incentives are provided to those regional contractors that perform better than the others.			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input checked="" type="checkbox"/> DTIC USERS <input type="checkbox"/>		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL ACSC/EDCC Maxwell AFB AL 36112-5542		22b. TELEPHONE NUMBER (Include Area Code) (205) 293-2483	22c. OFFICE SYMBOL

PREFACE

The breakup of the Bell System was the end of an era for the American consumer. In some respects, "Ma Bell" was only appreciated after the massive changes in telephone industry became visible to the average person through the increased local service costs and bewildering array of long-distance companies. These changes also affected DOD communicators who provided long haul service to bases and posts through the Bell System. Many felt the Bell System gave DOD special treatment, often performing miracles to give them the best service. In essence, when service was needed, they responded.

Since the breakup, the new arrangements have not been as kind to DOD communicators. The reality of the free market forces all long distance companies to watch expenses while the lack of someone to say "do it" when different corporations are working together results in problems with new installations and troubleshooting existing circuits. DOD needs to shed its old attitudes about communications and start looking out for itself, because "Ma" is not around anymore. This paper will present some approaches which may strengthen DOD's position when dealing in the new communications market, and may save costs further down the road.

The author wishes to thank Major Don Ottinger of Air Command and Staff College for his excellent advice and Major Charles Croom of Headquarters, USAF for all his hot tips regarding information. Last, but not least, the author wishes to thank his wife Donna for her role as wordprocessor widow during the production of this paper.

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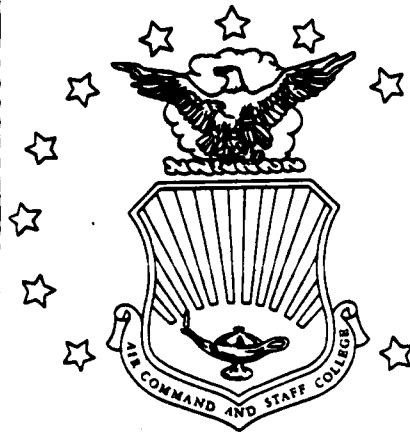
ABOUT THE AUTHOR

Major Samuel R. Logan is from Havertown, Pennsylvania (a suburb of Philadelphia) and graduated from Saint Joseph's College in 1974 with a Bachelor of Science degree in Chemistry. He was commissioned as a second lieutenant and attended the basic communications-electronics officer course at Keesler AFB, Mississippi. Upon completion, he was assigned to electronics installation squadrons at Griffiss AFB, New York and Lindsey AS, Germany. He then attended the Naval Postgraduate School in Monterey, California and received a Masters of Science degree in Systems Technology (Command, Control, and Communications). In 1981, he was assigned to the Defense Communications Agency in Arlington, Virginia where he worked on the design of a replacement network for the present AUTOVON. Prior to attending the Air Command and Staff College, Major Logan performed command, control, and communication requirement validation duties in the Directorate of Operations, Headquarters, United States Air Force. He is also a graduate of Squadron Officer School in residence.

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EXECUTIVE SUMMARY



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REPORT NUMBER 87-1580

AUTHOR(S) MAJOR SAMUEL R. LOGAN, USAF

TITLE IMPROVED METHODS TO OBTAIN COMMUNICATIONS SERVICE
FROM COMMERCIAL VENDORS

I. Purpose: To review the way the Department of Defense orders long haul communications service since the AT&T divestiture and recommend new methods to improve service and cost.

II. Problem: Prior to the AT&T divestiture, the DOD obtained long haul communication service mainly through a single, regulated network. Costs were controlled, and service was satisfactory. The AT&T divestiture allowed for competition within the communications industry but the new competitors of AT&T did not pursue DOD's market while, at the same time, they were aggressively challenging AT&T in the private and business market. Costs tend to increase when one company dominates a sector of DOD's market and the Secretary of Defense has encouraged increased competition in all procurement actions. In addition, the unique nature of communication networks forces several corporations to join in providing service though their connected facilities, but no one currently has end-to-end management responsibility. What options are available to DOD to increase competition in its long haul communication market and what can be done to resolve the lack of end-to-end management for communication circuits?

III. Data: The AT&T corporation and subordinate Bell Operating Companies (BOCs) dominated the United States telephone industry for over 60 years. During this time, AT&T and governmental

CONTINUED

regulatory commissions developed pricing policies which subsidized the cost of local telephone service through the large profits gained from long distance and business service. This pricing strategy presented business opportunities to other long distance companies, notably MCI, and their difficulties in dealing with the BOCs caused the Department of Justice to start antitrust proceedings against AT&T over the objections of the Department of Defense. Ultimately, the antitrust suit ended with an agreement to divest the BOCs from the long distance segment of AT&T. This caused additional coordination problems for DOD personnel responsible for ordering new service and resolving problems in existing circuits, but it also presented an opportunity to introduce competition in an area which previously had none. The main problem is that there appears to be little chance for any of the AT&T competitors to win contracts due to AT&T's dominant position in DOD's long haul communications market. Also, the lack of end-to-end management of circuits becomes a major problem when something goes wrong and "finger pointing" between the various corporations develops.

IV. Conclusions: DOD needs to introduce competition into the long haul communications arena to take advantage of the lower costs associated with competitive markets. By comparison, the USAF introduced competition into the fighter aircraft engine market with remarkable reductions in life cycle cost. In addition, end-to-end management responsibilities should be assigned to corporations for various DOD circuits.

V. Recommendations: Competition could be introduced through a system of regional contractors responsible for all long haul communication requirements for a segment of DOD customers. Use of the contractor's own facilities would be permitted and encouraged. The regional contractor would be required to provide efficient service to all customers, with contractual incentives that allows them to correct the most notable problems present today. The award of regions to contractors would be done on a competitive basis, and at least one region would be set aside for competition among contractors other than AT&T. The regional contractor would also be responsible for end-to-end management of circuits, with performance of this function included in their overall evaluation.

Chapter One

INTRODUCTION

Until recently, the Department of Defense had a very comfortable relationship with the telecommunications industry of the United States. With the American Telephone and Telegraph (AT&T) corporation at the lead and a set of regulated tariffs to determine charges, the DOD could rapidly order communications service anywhere in the United States, confident the telecommunications industry would fulfill the needs. In addition, AT&T normally acted as the "overseer" to ensure all segments of the service performed as required, effectively the "end-to-end" manager. In a way, the cost of service was a moot point because the tariff spelled out the charges and the industry received a regulated profit on its investment. The AT&T divestiture that occurred on 1 January 1984 has dramatically changed the way that DOD gets its communications service within the United States. The time required to install new service has increased from about 30 days to as long as 120 days from order to activation, the cost for service has increased as much as 800 percent, and management problems have multiplied because several independent companies are involved now in an area where one company previously dominated (24:12,22; 22:1).

Ironically, DOD usually prefers to have competition, since competition usually benefits the buyer of goods and services. In a 9 September 1982 memo, Secretary of Defense Weinberger stated

The Department of Defense components are to place maximum emphasis on competitive procurement. . . no type of purchase is automatically excluded from this directive <and> particular attention should be given to those areas where the assumption traditionally has been made that competition is not available (18:11).

However, DOD was one of the few federal government agencies which did not favor the AT&T divestiture action due to fears of reducing the effectiveness of vital command, control, and communications functions (1:Ch 5).

Recent reports have shown the effect of the AT&T divestiture and what changes (all bad) would occur when "Ma Bell" was broken apart (24:--; 1:--). Now that the decision has been made, DOD has no choice but to live with the new communications environment. There is little chance AT&T and the Bell Operating

Companies (BOCs) can be reunited, and the competitive nature of the communications industry is here to stay. However, this situation, as different as it is from the good old days, does present some opportunities that were not available in the past. The key is, accepting the reality of the market, how does DOD use its huge (\$960 million +) commercial communications demand to its best advantage (24:24)? Is it possible the incentive of profits for some of the new (and hungry) competitors to AT&T could be used to DOD's benefit? What type of strategy should DOD use to maximize the service it receives for the resources (money, people, and facilities) expended?

This paper will differ from others on this subject in that the "pre-divestiture" era will be examined only briefly to establish a baseline for the way things were. The main thrust of this paper is to show the changes in DOD communications service since 1984 (divestiture), identify the new competitors who share the long haul communications market with AT&T, examine the problems due to the new players in the commercial communications environment, and propose an alternative approach to help DOD use its market size to gain the advantage when dealing in today's competitive telecommunications industry. In short, this paper will concentrate on answering the questions posed above.

Chapter Two

THE AT&T DIVESTITURE

"Universal service" was a goal set by AT&T Chairman Theodore N. Vail in 1909 (1:19). Universal service meant the cost of telephone service needed to be low enough that almost everyone and every business would be able to afford the basic service. AT&T was able to convince federal and state governments it was the company which could do the job on a national scale, and was granted de facto exclusive rights to that function through the Kingsbury Commitment of 1919 (2:58). Because of the universal service goal and the control of the state public utility commissions, pricing of service often did not reflect the cost. Basic telephone service to private homes was artificially low, while long distance and business service made most of the profits for AT&T, an arrangement which was agreeable to the American public (7:18-21). In fact, prior to divestiture, a New York Times poll showed over 80 percent of Americans were happy with their telephone service, the highest rate for any business in the country (2:367).

WHAT CAUSED DIVESTITURE

AT&T companies were a controlled monopoly which were guaranteed a set rate of return on investments, but this did not mean each service produced the same profit percentage, so some services (like long distance) made enough profits to subsidize the cost of other services (like private homes)(7:18-19). However, this made long distance service a lucrative target for competition, and MCI, among others, attempted to set up independent long distance networks in the 1970s and break into this highly profitable segment of the telecommunications business. But, through its control of local exchange segment of the telephone industry, AT&T was able to hamper MCI's plan (2:55-56).

As a result, the US Justice Department filed an antitrust suit against AT&T in 1974 (1:48). The suit was ended with an agreement to breakup the AT&T system essentially into separate government controlled local companies (BOCs) and a competitive long distance company (the new AT&T). Some industry sources felt the old AT&T was not innovative, slow to provide new types of services, preyed on its competition, and limited consumer choice (19:76-80). They thought the competitive environment would force

AT&T to give customers new choices.

AT&T'S RELATIONSHIP WITH DOD

In spite of all its faults, the old AT&T gave DOD exactly what it wanted. High on DOD's priority was end-to-end management of commercial communication service, new service on demand, rapid changes when needed, and reasonable prices. In the totally regulated environment of that time, AT&T's special service to DOD was just another business expense which would be absorbed by the entire subscriber base. An example of this is the hardened cable system and underground facilities installed in the 1950's by AT&T. Numerous sites around the country were built to withstand nuclear bomb damage, equipment was shock mounted, and air, water, and power systems were designed to operate for extended periods of time after a nuclear attack. Coaxial cables were buried much deeper than normal to protect them from similar threats. The cost of these facilities, with the obvious benefit to national defense and DOD, was paid by the general public through the added expenses that increased their telephone rates (24:16). In other words, the DOD gained a hardened, survivable, command and control system without spending DOD budget dollars.

DEPARTMENT OF DEFENSE VERSUS DEPARTMENT OF JUSTICE

Not surprisingly, DOD officials testified it was in the national interest to have AT&T keep its monopoly status. In a 1981 memo to the Attorney General, Secretary of Defense Weinberger stated

The Department of Defense recommends very strongly that the Department of Justice not require or accept any divestiture that would have the effect of interfering with or disrupting any part of the existing communications facilities or network of the American Telephone and Telegraph Company that are essential to defense command and control (1:51).

A letter from Deputy Secretary of Defense Carlucci to Assistant Attorney General Baxter later in 1981 stated

. . . severe problems will confront the Department of Defense if this network is broken up. Accordingly, it is the position of the Secretary of Defense that the pending suit against the American Telephone and Telegraph Company be dismissed (1:52).

These responses show that DOD was extremely reluctant to see Ma Bell's demise. The fact AT&T employees helped write these

responses shows the extent of AT&T and DOD interdependence (2:257).

THE NEW ENVIRONMENT

The split up of AT&T has caused problems for the communications personnel of DOD. Where there was one point of contact and one corporation for the whole network, now there are up to three points of contact and three corporations for a single circuit, causing problems in starting new service and isolating problems when they occur. A more difficult area to quantify is that AT&T's "special" treatment of DOD in terms of speed of service activation and restoration. This treatment is no longer available since the cost of providing "special" service now becomes an expense which makes the new AT&T less competitive with the other communication companies (24:17-18). The old AT&T was willing to spend additional funds to take care of short notice DOD service requirements and do it under the specified tariff rate. The new AT&T now wants additional charges to cover any additional costs, a reasonable response for a profit making organization. Special procedures have been established under the National Communications System for critical command, control, and communication systems, but this deals with essential national security circuitry and is not available on a daily basis for normal service requests (1:90-92).

Another area of concern is the question of responsibility for a circuit from user-to-user, or end-to-end management. The author's experience in fault isolation has been that problems are resolved in a reasonable time if all segments of a circuit accept a single element as the lead for troubleshooting and circuit testing. Without that direction, the situation can deteriorate to "it left here good, the problem's on your end," sometimes causing significant delays in finding and fixing the problem. Without the umbrella of the old Bell System, no one is in charge of end-to-end management of circuits when more than one company is involved (24:15-16).

Since divestiture, the new AT&T has been quite active and interested in gaining DOD communications service contracts as shown in their success in winning the Defense Commercial Telecommunications Network (DCTN) contract. This 10 year, \$400 million contract is mainly for video teleconferencing at 25 CONUS locations, but this is sure to grow as the technology matures (5:13). They have also aggressively pursued contracts for local communications service such as the \$82 million contract for service within San Diego. Is it possible AT&T may be trying to keep the DOD orders by "buying in" (12:14)? Such actions place AT&T in a position of actually winning all long haul communication contracts for a short period of time, eventually discouraging all other companies from bidding on contracts,

giving the appearance that AT&T always wins when DOD is making the selection.

Is this almost exclusive arrangement with AT&T for long haul communications service in the best interest of DOD? Initially, at least, the prices seem to be acceptable and no one normally complains about the service AT&T provides, but the DOD may eventually find itself in a position of having only one company (AT&T) capable or interested in bidding on communication service requests. This arrangement worked fine for years under controlled, regulated conditions, but, at some future date, the situation may become a seller's market with DOD being forced to accept high prices from the single bidder for services. Private industry is now finding costs have skyrocketed and installation time has doubled in areas where AT&T's service was deregulated (11:116). Since many types of service DOD orders from AT&T are still regulated, increases in price may just be starting. DOD needs to examine the other options available to it before AT&T becomes free to charge whatever it wants in the unregulated free market.

Chapter Three

THE AT&T COMPETITORS

Numerous AT&T long haul communication competitors have emerged in recent years, offering many options to both business and government for telecommunication service. Several of the companies are attached to strong parent companies (e.g., MCI with IBM), and numerous mergers have occurred (e.g., GTE Sprint with US Telecommunications). Also, many of the AT&T competitors with weaker business positions have gone out of business. This shake-out mainly involved companies that took advantage of tariff provisions which allowed them to buy circuits at bulk rates from AT&T and resell to businesses and the public at lower prices than AT&T was allowed to offer. These resellers had few, if any, facilities and suffered from the AT&T price reductions in recent years. The present situation among the surviving AT&T competitors is they are growing in size and consumer base and are able to provide comparable services with a modest price savings over the same AT&T service. While regional companies exist, discussions in this paper will be limited to AT&T competitors offering nationwide service.

MCI COMMUNICATIONS CORPORATION

The oldest AT&T competitor for long distance service is MCI. Originally called Microwave Communications Incorporated, MCI petitioned the FCC in 1963 to allow them to provide common carrier service, and was eventually allowed into the market in 1969 (1:33). MCI led the way for others into this new market, and MCI also had the most difficult time in establishing interconnection arrangements with AT&T. The MCI Chairman of the Board summed up his problems by characterizing the AT&T attitude as:

1. Don't interconnect with MCI at all.
2. When the FCC and the courts say we <AT&T> must interconnect, give MCI lousy service and facilities to restrain their growth.
3. Overcharge MCI at every step of the way to obscure their greater efficiency . . . (1:47).

The problems encountered by MCI are considered the main cause for the Department of Justice filing their Antitrust suit in 1974. Today, MCI provides nationwide service over its 32,000

route mile microwave and fiber optics system, and expects to have a 40,000 route mile system in the late 1980s (6:1,39;14:4,7). MCI has been able to expand its system through use of railroad right of way for fiber optic cable routes and massive infusions of capital from parent company IBM to support the \$3.5 billion building program. Revenues continue to rise over the past year with \$3.2 billion expected in 1986. MCI is considered the biggest competitor to AT&T in the business arena, having 450 of the Fortune 500 companies as their customers (14:7).

US SPRINT COMMUNICATIONS CORPORATION

US Sprint was recently formed through the merger of two marginally profitable operations, GTE Sprint Communications Corporation and US Telecommunications Corporation. Traditionally the lowest priced long distance provider in the private consumer market, US Sprint has advertised their system as the highest quality available (you can hear a pin drop across their network--according to advertisements)(21:--). Their claims may be true since their system is completely digital fiber optics, the least "noisy" technology available at this time. US Sprint presently provides nationwide service with a 14,500 mile system with plans for a 23,000 mile network by 1988 (14:7). Although their revenue of \$2 billion is less than MCI's, they appear to have the necessary market mass to be competitive.

COMSAT CORPORATION

The most recent merger of AT&T competitors involved Comsat Corporation and Contel Corporation. The merger, announced in October 1986, may produce the most formidable competitor due to the strategic combination of Comsat's satellite resources and Contel's strong position in terrestrial communication markets in the Midwest. Due to government restrictions, Comsat will be the surviving corporation even though it is considerably smaller than Contel, but the combined \$3.1 billion yearly revenue makes Comsat almost equal in size to MCI (3:1-2). The new chief executive officer of Comsat made an observation that government communication networks will be their fastest growing segment of the company's market, showing that they are interested in pursuing government business (10:26).

COMPETITORS, BUT NO COMPETITION

With three strong, aggressive competitors such as MCI, US Sprint, and Comsat, why don't they actively pursue DOD long haul communication contracts? In 1985, the Defense Commercial Communications Office (DECCO), a Defense Communications Agency (DCA) organization, began to offer new communication contracts

through competitive methods (23:--), but these corporations did not receive much, if any, domestic DOD business (25:--). In fact, MCI does not bid on new DECCO service contracts. Historically, DOD contracts have been exclusively AT&T and the Bell system in areas they service, and only when it was in an independent telephone company's territory did a non-AT&T company receive a contract award (24:32). A 1968 DCA policy on a single common carrier effectively made AT&T the only source of circuits for DOD whenever possible (1:16), and their 1985 reversal of this policy that allows for competition may not be considered credible among the AT&T competitors (23:--).

An interesting comparison can be made between how DOD and the General Services Administration (GSA) approached the competitive communications environment. Essentially, DOD has allowed the status quo to continue, while GSA is designing a completely new telecommunications system, called FTS 2000, that provides for competition from the beginning. GSA is tasked to give communication service to all federal government agencies except for DOD, and presently spends \$505 million per year to operate the Federal Telecommunication System (FTS). Like the DOD AUTOVON, FTS is presently operated by AT&T and uses quarter century old analog equipment to handle 300 million long distance calls per year. Unlike DOD, GSA has called for a new, comprehensive contract to replace this system with digital equipment and designed the contract bidding to allow for fair competition among the corporate bidding teams. Even though the AT&T team is considered the front runner (16:49), the MCI and US Sprint corporate executives must think they have a chance, since they have formed separate consortiums with Martin Marietta and Electronic Data Systems respectively. In any case, GSA (and the taxpayer) wins since the threat of competition generally provides incentives to contractors to "sharpen the pencils" when it comes to contract pricing information. With \$4.5 billion in revenue on the line (the minimum expected for the FTS 2000), this competition is expected to save over \$100 million per year (17:2,34; 16:2,49).

The FTS 2000 contract bidding consortiums show the trend for the future communication environment--multiple companies involved in proving communication service. Chapter Four will discuss the problems users (and buyers) of communication service experience in dealing with several companies involved in providing segments of the system.

Chapter Four

PROBLEMS WITH NUMEROUS COMMERCIAL VENDORS

The long term relationship between the Bell System and the DOD provided an easy path for ordering and operating communication circuits--the Bell System took the job of setting up all the service actions and DOD wrote the checks. There were no competitive bids, no contract award disputes, and rarely were there delays or problems with the circuits. In general, there was a small group of Bell System employees that handled all DOD service requests. This personal contact and familiarization with the procedures of both sides allowed for responsive actions when needed and efficient processing of necessary documents (24:Ch 3). The new environment is not as easy going, since profits and cost control are prime considerations for the commercial vendors, and the service requirements often force separate corporations to work together.

WHO'S IN CHARGE

While working together seems simple, the corporate desires will probably be different and no one executive can call the plays. For instance, a circuit from New York to Philadelphia, a distance of 90 miles, requires Bell of Pennsylvania (a Bell Atlantic company) to work with New York Telephone (a NYNEX company) and a long haul carrier (MCI, AT&T, etc.). Three companies are involved, all with differing goals. Bell of Pennsylvania may be limiting overtime, the long haul carrier may be trying to impress new customers with fast service, and New York Telephone may be working double shifts to reduce a backlog of service requests and will only do testing on midnight shifts. Of the three companies involved, no one has the leverage to force the other two into an amenable solution. All three companies are on equal footing. Obviously, the three companies will have to make some concessions if the circuit is to be installed in a reasonable time period. In the past, the Bell System's reputation was on the line, and that common thread would always take precedence over lower level goals. Now, the common thread does not exist, and, short of instituting national emergency procedures, these separate corporations cannot be forced to act in opposition to their corporate goals.

A key issue involved in the situation cited above (relative to DOD) is AT&T does not now have an advantage over other long

haul carriers when dealing with Bell System local operating companies. Any assumption by DOD personnel that using AT&T as the carrier of choice will make their task easier is false. Present arrangements do not give any company an overwhelming interest in the status of the circuits, leaving this task to be done internal to DOD or else by some other contractual means.

Several approaches have been proposed to solve the end-to-end management problem. Some suggest the system seems to work fairly well at present, and DOD may not need any formal agreements for end-to-end management (24:35-39). The problem with this approach is there are functions that only affect communication systems in stressed conditions, and these functions may not work if no one has been tasked to check them. The author had the chilling experience to find that a critical function of a high priority circuit did not work when needed, but the fault was only exposed when a real life situation caused the function to be activated. Technicians fixed the problem once it was identified, but estimated that the condition existed for years. End-to-end management, properly done, can avoid situations like this and will be discussed in the next chapter.

Chapter Five

OPTIONS FOR OBTAINING COMMERCIAL COMMUNICATION SERVICE

The problem addressed in Chapter Three is, in essence, that AT&T's competitors have not shown an interest in competing for a large part of the huge DOD commercial communications market. AT&T, without the aggressive competition it has in other segments of its market, has no incentive to keep the prices it charges down since its position is unchallenged. Chapter Four showed that the communication systems of today are conglomerations of circuits connected together by separate companies. None of the companies presently have the power to force another company to perform, effectively causing end-to-end management of circuits to become a separate task from that of providing circuits. Is there some way to improve the situation to DOD's advantage? This chapter will explore three options; the status quo, a separate problem approach, and a consolidated approach.

THE STATUS QUO

The present situation in commercial communications service is that AT&T dominates other commercial carriers in the DOD market. This position presents a dilemma to other commercial carriers. The time and expense of preparing bids on DOD contracts is significant, and the commercial carriers must have a reasonable expectation of success when they submit a bid. If AT&T wins all or most of the DOD contracts, then the competitors quickly realize that any attempt to break into this market will be a losing proposition.

The results of this method are fairly predictable. At that future time when the FCC completely deregulates the communication industry, DOD will find itself dependent on one corporation for a critical service, and that corporation will do exactly what the free market system expects--maximize profits. No longer will it need to worry about another corporation attempting to break into the market, since the competition was discouraged by over 50 years of close working relationships that existed between AT&T and DOD.

WHAT CHANGES ARE POSSIBLE?

If the status quo is not desired, how does DOD use this

favorable market situation to gain the most for each dollar spent on commercial communications? The first step is to determine what it would like to see in improvements over the present situation, and design a procurement strategy that meets its goals. Several service criteria could be established which, in addition to cost, would be included in measuring the quality of a circuit and the desirability of the corporation's proposal. The second step (and perhaps the most controversial) is to introduce a corporation other than AT&T into the DOD communications market. The final step involves an annual review of the service provided by each corporation and modifying the future percentage "split" between the corporations based on how successful they were in performance during the present period. The corporation that provided DOD the best service could expect to gain business during the next cycle, motivating them to excel.

This is not the first time DOD has found itself dependent on one corporation for the lion's share of a commodity. A number of corporations in the past have been the sole providers of items such as aircraft engines and electronic components. Due to the nature of military equipment, it often requires a specialized work force with special tooling to make items with the sole purchaser being the DOD. But DOD has also recognized cost often increases and the responsiveness of the contractor decreases when this occurs. Estimates of the reduction in cost of procurement when they become competitive range between 15 and 54 percent (18:12). A recent success story in changing situations of this type has been the Air Force's fighter engine competition.

During the 1970's, Pratt & Whitney was the sole source of F-15 and F-16 aircraft engines. In 1979, the Air Force decided to provide the General Electric Corporation, which made the B-1 aircraft engines, with research and development funds to produce an engine that would compete with the Pratt & Whitney F100 engine (8:E1-E2). The results were impressive. In 1984, the first year of true competition, General Electric gained 75 percent of the engine contract, leaving Pratt & Whitney with the rest (9:A1,A10). In 1985, based on improved cost and engine reliability, the Air Force estimated it had saved \$3 to \$4 billion on a \$16 billion procurement, and engine removal rates had dropped from 7.3 per 1000 hours to less than 4.4 per 1000 hours (20:16; 15:18-19). The Secretary of the Air Force estimated they paid an additional five percent to keep two contractors in competition through the production phase, but the life cycle cost improvement and increased engine reliability has returned this up front cost with dividends (4:G24).

Unfortunately, there are some significant differences between the aircraft engine competition and today's situation in commercial communications. The prime difference is there are no research and development funds needed to enter the DOD commercial communication market since all vendors presently offer capable

products. In addition, there are numerous vendors which, if they wanted to, could provide the service to DOD. However, differences aside, there is one major similarity. There is a single vendor that thinks that it has the "upper hand" when dealing with DOD and the other vendors probably believe it. Therefore, if DOD can compete high performance aircraft engines, it should be able to compete plain vanilla communication requirements.

SOLVING SEPARATE PROBLEMS

One approach to changing the present system is to look at each problem and solve it in an independent manner. The end-to-end management issue could be done by a contractor specifically tasked to perform this function. This contractor would be provided with a list of circuits and responsibilities to monitor, isolate troubles, and assign corrective actions when necessary. Conversely, DOD could develop a capability to perform this function within the government (24:39), but the present administration prefers to assign tasks to industry whenever possible. Another option would be to assign this responsibility to a nonprofit organization like RAND or MITRE, but they would not have those types of skills needed for end-to-end management in-house and would require time to develop them. With approximately 150,000 active circuits (24:30), this would be a significant task.

Introducing competition into the DOD market may involve an increase in cost for a short period, but should result in lower costs in the future. Without getting bogged down in details, the DOD could offer a segment of the communication pie for competition to all companies except AT&T. The competitors would know they have a reasonable chance to win, and probably would submit bids. The initial segment could be a small percentage of total contracts, with opportunities to increase the market share in future years once the market is opened to competition. Any premium paid above the cost of AT&T prices should be considered like the R&D funds spent to provide competition in the fighter engine procurement.

The problems with differing corporate goals and how to make them work together would not be solved using this method since no incentives are provided to the communication corporations providing local service. This should be considered the greatest limiting factor to this method.

THE COMBINED APPROACH

Use of communication corporations as overseers of DOD's long haul communications service could solve many of the problems of today and expected problems of the future. End-to-end

management, market domination, and increasing cooperation among corporations may appear as unlikely candidates to combine in one approach to obtaining communications service. However, the core of this approach is to appoint a communications corporation as a point of contact for service and problems within a geographical region and give incentives to do this task efficiently, the promise of increased future profits being the ultimate "carrot on the stick."

This approach would call for dividing the continental United States into a reasonable number of regions, with a single communications corporation being responsible for providing all service that originated within that region (circuits, obviously, have two ends, but only one organization can request service). For no other reason at this time than "that looks about right", the author suggests seven regions be established along the lines of the seven BOC parent corporations, and a "regional contractor" be designated for each.

This regional contractor would have the authority to go to any corporation (including itself) to provide communication service to DOD. The service would include end-to-end management of all circuits, and the understanding the regional contractor is charged to resolve all problems that occur, regardless of what corporation is the cause. At least one of the regions should be reserved for a regional contractor other than AT&T, but all should be opened up for competition to gain the regional franchise.

Evaluation of the regional contractor would involve impartial data of their performance during the year. At present, the greatest irritant appears to be the long time delay in processing new circuit requests with delays of up to 120 days being common (22:1). If the regional contractor is told excessive time delays in providing new service will cause them to lose new profits (or the possibility of losing the franchise), overall reduction in processing time should be expected. A key part of this plan is to allow the regional contractor to do what the private sector does best--obtain the best deal for the money. Free of government procedures, the regional contractor can consolidate requirements and make prudent decisions which can reduce costs for the government and increase his profits.

The track record of regional contractors in pricing and responsiveness can be compared with other regions to determine which regions have performed well and who should be considered for additional work (the regions could expand or contract, and the regions should be competitively rebid at appropriate time intervals). Some adjustments in comparison of regions may be necessary to be fair to all regional contractors. Knowing the regional contractor is capable of sending business to its own corporation should provide the proper motivation to keep control

of a region, which means that DOD is satisfied with their performance.

Chapter Six

CONCLUSIONS

The AT&T divestiture was a significant event for both the commercial communication market and for DOD. The breakup forced numerous changes in the way communication requirements are fulfilled by communication organizations within DOD, increasing the complexity of the ordering process, increasing the time delay between ordering and receiving new communications service, and increasing costs. This environment is here to stay--no amount of protesting or wishing for the "good old days" will bring back the old, familiar Bell System. However, the AT&T divestiture also signaled a new era of competition in the communication market, something DOD should be able to use to its advantage due to the sheer size of its communication requirements.

However, the new competition to AT&T has been slow to challenge them in the DOD long haul communications market. To avoid becoming completely dependent on a single profit motivated organization, effectively a sole source situation, the DOD should encourage other communication corporations to enter this market by "fencing off" a segment of the market to non-AT&T companies. As stated in Chapter Five, at least one region of the country should be reserved for the AT&T competitors, but competition is needed in all regions. In addition, all corporations in the DOD market should have incentives to keep costs low, keep service high, and quickly fill new requirement when tasked. The incentive should be an increase in the percentage of the new service requirements, thereby increasing their market share and profit potential.

End-to-end management for circuits should be done by regional contractors. They should monitor circuits and direct corrective actions when necessary. The regional contractor should have the authority to make contractual agreements with local communication corporation and others to guarantee their responsiveness when problems develop.

There may be some increased costs in starting this method, but the future rewards in cost saving through competition should dwarf these expenses (similar to the aircraft engine competition discussed in Chapter Five). The potential future cost savings, in addition to the flexibility of having several sources on hand in the event of emergencies or catastrophes, are good reasons for investigating this recommendation.

This paper does not answer all the questions involved in creating an entirely new way of providing commercial communications service, but it does show DOD has options besides accepting the current situation with all its problems. The first question posed in Chapter One referred to the large size of the DOD commercial communications market. It has not been actively pursued by the numerous long haul communication companies, yet a market half its size (the FTS 2000 competition) has gained the serious attention of MCI and US Sprint. The author assumes the larger market of DOD, with all else being equal, should have at least the same level of attention shown for the FTS 2000 contract. However, this could change if the DOD market presented the possibility of profit to more of the long haul communication competitors (which answers the second question asked in Chapter One), since competition typically reduces cost to the consumer. Using regional contractors for commercial communication requirements and end-to-end management, along with "fencing off" at least one region for the competitors of AT&T, introduces competition into the commercial communications market along with the much needed single point of contact for service, which is the sought after strategy emphasized in the final question of Chapter One.

It might take a lot of thought and a change in mindset to accept the decisions of a contractor regarding circuit assignment, but that contractor has profit incentives which, if the contracts are designed right, increase when he performs that service well. Fortunately, there are no plans to completely deregulate the AT&T services in the immediate future, so there is time to work out all the details for a change of this magnitude. In brief, think about this before DOD finds itself paying the cost of an unregulated, noncompetitive market environment.

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